Here are a few sample abstracts taken from various published papers.

Abstract—This article considers the potential use of multiple autonomous underwater vehicles (AUVs) in order to increase the performance of underwater optical imaging systems. In this case, placing cameras on one set of vehicles and lights on another set can surmount the traditional limitations to single vehicle imaging. As envisioned, the arbitrary location of these vehicles in 3-dimensional space permits the arbitrary placement of cameras and lights. One advantage over traditional, single vehicle implementations is that the locations of the cameras and the lights can be dynamically configured in order to optimize imaging system performance. Highly scattering environments might by optimized by one set of camera light configurations measurement of the sea floor can be facilitated via various whereas low scattering and low absorption environments might benefit from alternate configurations. In addition. 3-dimensional configurations that will support either structured light imaging or stereo imaging. We conclude that Multiple AUV Optical Imaging presents new options for improving the performance of underwater optical imaging system.

Abstract—This paper presents the design and preliminary test results for a small gas tight water sampler intended to work on scientific AUVs. In recent years AUVs have developed into reliable platforms capable of carrying a wide variety of environmental sensors for in-situ chemical measurements. Physical sample collection however remains difficult, due to the combination of space, power and complexity constraints inherent in working with autonomous platforms. The AUV sampler is a small (12 cm x 85 cm) cylindrical package designed to collect eight 20 ml gas tight volumes of water, with each sample maintained at high pressure to depths of 2000 meters. The motivation behind this device is to provide high quality autonomous water sample collection and return for accurate analysis of dissolved chemicals without degassing. Additionally the system can be used to ground truth in-situ chemical measurements

Abstact- This paper reviews deep ocean science operations conducted by the Autonomous Benthic Explorer (ABE), an AUV built and operated by the Woods Hole Oceanographic Institution. ABE’s operational accomplishments to-date are summarized and a previously unreported survey – the mapping of deepwater corals and their habitats using multibeam sonar and a digital still camera – is discussed. The operations reviewed are representative of the variety of oceanographic surveys currently conducted by deep-ocean AUVs. As with most AUV deployments, these results involve the use of a single AUV to achieve the prescribed survey tasks. The second part of this paper discusses the extension of the single vehicle operations to the simultaneous operation of multiple AUVs. Based on the technologies and operational procedures developed during single-vehicle operations, we present two potential operating strategies and show the resulting improvements in overall survey productivity. (WHOI).